

REMARKS

Claims 1-3, 6, 14, 15 and 18 are pending in this application. Claim 1 is the sole independent claim. By this Amendment, claims 5, 9, 10 and 17 are canceled without prejudice or disclaimer. Claim 1 is amended. Claim 18 is added. No new matter is added.

Entry of Amendment After Final Rejection

Entry of the Amendment is requested under 37 C.F.R. § 1.116 because the Amendment: a) places the application in condition for allowance for the reasons discussed herein; b) does not present any additional claims without canceling the corresponding number of final rejected claims; and/or c) places the application in better form for an appeal, if an appeal is necessary. Entry of the Amendment is thus respectfully requested.

Claim Rejections

Rejections Under 35 U.S.C. § 103

Claims 1-3, 6, 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,005,350 (“Brenneisen”), and claims 5, 9, 10 and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Brenneisen in view of U.S. Patent No. 6,188,557 (“Chaudhry”). The rejections are respectfully traversed.

As claims 5, 9, 10 and 17 are cancelled, the rejection of those claims is moot. However, as the subject matter of claim 5 is incorporated into independent claim 1, the rejection under the combination of Brenneisen and Chaudhry is discussed herein.

Neither Brenneisen nor Chaudhry, whether considered alone or in combination, disclose or suggest each and every feature recited in the rejected claims, as amended. For example, the combination of references fails to disclose or suggest a circuit arrangement comprising a voltage link converter ... and a short circuit protection arrangement ... wherein the short circuit protection arrangement is connected in parallel with the intermediate circuit capacitor via additional protective diodes arranged in two connecting lines, the additional protective diode in the first connecting line conducting in opposition to the additional protective diode in the second connecting line, wherein a connection point between two series-connected switching elements and a switching pad is connected to a connection point between two series-connected protective

diodes of the short-circuit protection arrangement, and wherein the switching elements and the switching pads are IGBTs, as recited in amended independent claim 1.

Brenneisen relates to protecting a self-controlled polyphase bridge-type inverter utilizing controllable valves (e.g. thyristors). In the arrangement of Brenneisen, it is possible, depending on the protective devices selected, to ignite a thyristor 17 of a short circuiting unit connected in parallel with a smoothing condenser 7 and/or thyristors 26, 27 and 28 in the by-passes for the paired load thyristors 11-16. The smoothing condenser 7 will discharge and change its polarity during the course of oscillation between the condenser 7 and the inductances 5, 8A, 8B, 9A, 9B, 10A and 10B and will then again discharge in a reverse direction through diodes 11A-16A which are connected anti-parallel to the thyristors 11-16 (column 4, lines 1-11).

It is alleged in the Office Action that the smoothing condenser 7 corresponds to the “intermediate circuit capacitor” recited in the rejected claims. It is also alleged that the load thyristors 11-16 correspond to the claimed “switching elements” and that the thyristors 11A-16A correspond to the claimed “series connected protective diode pairs.”

It is further alleged that the diodes 134, 136 shown in Fig. 2A of Chaudhry correspond to the claimed “additional protective diodes arranged in two connecting lines, the additional protective diode in the first connecting line conducting an opposition to the additional protective diode in the second connecting line.”

However, the diodes 134, 136 of Chaudhry are not part of a short circuit protection arrangement connected to an intermediate circuit capacitor, nor are the diodes 134, 136 connected to an intermediate circuit capacitor in two connecting lines that conduct in opposition to one another. Rather, in Chaudhry, a secondary over voltage protection section of circuit 100 comprises diodes 126-136 and an avalanche diode 138. Diodes 126-132 form a diode bridge and the avalanche diode 138 is connected across the bridge. When excessive positive voltages appear at terminal 140, the voltages are clamped by diodes 126 and 136 and avalanche diode 138. When excessive negative voltages appear at the terminal 140, the voltages are clamped by diodes 128 and 134 and avalanche diode 138. Thus, the arrangement of Chaudhry does not disclose additional protective diodes as recited in the rejected claims but, rather, the diodes 134 and 136 are integrated into the short circuit arrangement.

Regarding claim 2, although it is admitted in the Office Action that Brenneisen fails to disclose a short circuit protection arrangement that is only connected to the intermediate circuit

capacitor and to the switching paths of the power supply system side, it is alleged that it would have been obvious to apply the protection at any and/or all sides requiring protection. However, as there is no suggestion or motivation to so modify Brenneisen in the applied reference, the allegation that to do so would be obvious is improper. Moreover, such a modification i.e., connecting short circuit protection arrangement only to the intermediate side capacitor, i.e., the smoothing condenser 7 and the switching pads of the power supply system side, would render Brenneisen inoperable as designed. Accordingly, withdrawal of the rejection is respectfully requested.

New Claims

None of the applied references, whether considered alone or in combination, disclose or suggest the additional features recited in claim 18. For example, the combination of references fails to disclose or suggest the circuit arrangement as claimed in claim 1, wherein the series connected protective diodes do not carry a current during normal operation of the voltage link converter.

CONCLUSION

In view of the above remarks and amendments, Applicants respectfully submit that each of the rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

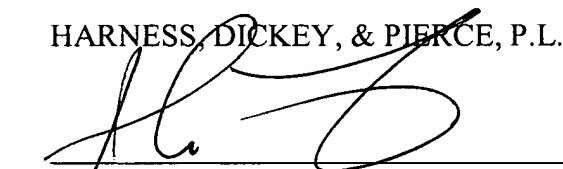
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Fitzpatrick at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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By


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